

MARINE REVIEW.

VOL. VI.

CLEVELAND, OHIO, THURSDAY, SEPTEMBER 29, 1892.

No. 13.

Demanding Standard Systems of Inspection.

In all parts of the lakes owners and builders of steel vessels are beginning to show the results of serious consideration accorded to the Western Reserve accident. The great question of structural strength of lake steamers now brought out so forcibly does not belong alone to the builders of the Western Reserve, nor to any one ship building or ship-owning concern of the lakes, as events of the past ten days very clearly show. Neither will it be solved by any great meeting of underwriters, or the promulgation of any one set of rules to govern construction. Greater strength and more care in the navigation of these vessels will be brought about by owners and representatives of the underwriters, who have already begun the work.

An initial step in this direction is now being made at the ship yard of F. W. Wheeler & Co., West Bay City, Mich., where Mr. E. Platt Stratton, consulting engineer of the American Shipmasters' Association of New York, publishers of the Record of American and Foreign Shipping, is making arrangements preparatory to giving a classification to the two steel boats building there for the Hawgood and Avery Transit Company and the Mitchell Transportation Company of Cleveland. The contract for the Hawgood boat called for construction under the rules of the American Shipmasters' Association, and Mr. Stratton, who can be looked to as the chief authority on naval architecture in the organization, made the broad statement while in Cleveland that there is not another steel vessel on the lakes, under construction or in commission, that would be given in present condition, a classification under the rules of the association which he represents. Mr. F. W. Wheeler became acquainted with the methods of this association on the coast, and its standing among underwriters throughout the world, while building the steamers Mackinaw and Keweenaw, and the steel tug which the firm of F. W. Wheeler & Co. sent to the coast recently. Mr. Stratton is now in Bay City for the purpose of beginning the work of inspection on the Hawgood and Mitchell boats, and the American Shipmasters' Association will, of course, be paid for this service by the owners of the vessels.

In this connection some questions naturally arising are these: What benefits do owners derive from such inspection? Why was not this association and others of its kind called into service with the beginning of the work of building steel vessels on the lakes? Why have foreign as well as home underwriters given extremely low rates of insurance to lake vessels if there was any need of such inspection? The answer to all this is contained in the single statement that the owners seeking inspection and classification for their vessels in this way are looking to the future. Although the insurance business of next year may go on just as it has in the past, it is admitted on all hands that underwriters taking risks on lake vessels have had virtually no standard system of classification. New York brokers, who have placed insurance business in England, have done so under late customs and on the strength of general confidence in the stability of lake vessels. If more than this is to be demanded by underwriters in order to secure low rates of insurance the owners here referred to want to be prepared with a classification that carries weight among insurers.

That the American Shipmasters' Association is a recognized authority in this country there is no doubt. On account of the inferior position which the United States holds as a maritime nation it is not, of course, as broad an institution as that branch of the British Lloyds, publishing a register, or the Bureau Veri-

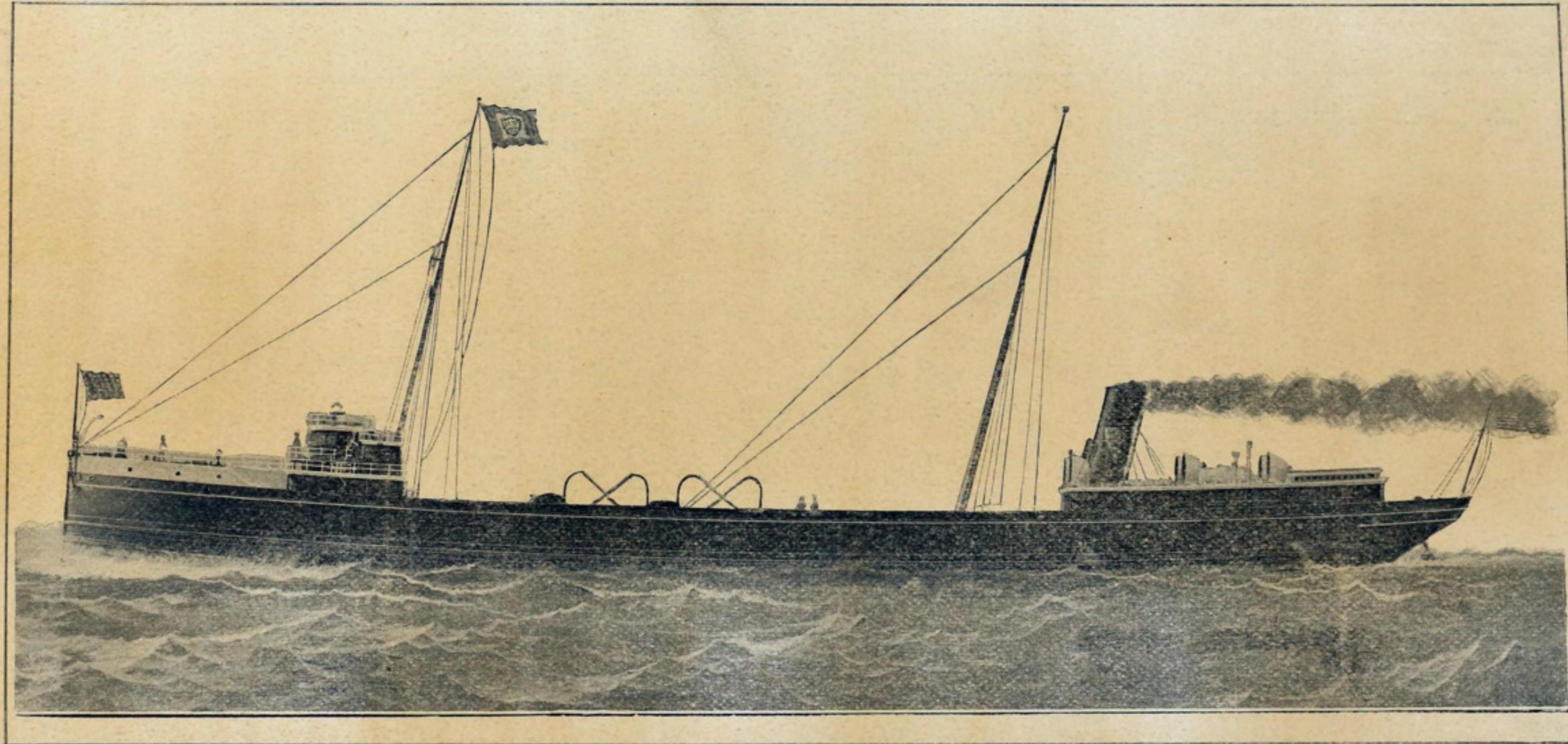
tas of France. A rating in its register is, however, a matter of great value to any vessel, and unless some broad and comprehensive plan of local inspection is established on the lakes it may be expected that this association will soon gain a strong foothold here.

A representative of the Bureau Veritas, the French organization of a kind similar to the American Shipmasters' Association, has been on the lakes recently investigating the subject of inspection, but as yet it has not been learned that anything has been done by that body. It was announced also that the United States Steamship Owners', Underwriters' and Builders' Association of New York, an organization which publishes a register on a smaller scale, would ask for a conference of insurance agents in Detroit shortly, on the subject of inspection of lake vessels. It is hardly probable that such a conference would, however, amount to anything if it is held, as it would be extremely difficult to unite underwriters on any set plan of action, and the benefits to be derived from improved inspection must come about largely through individual work with builders and owners.

Lake Freight Matters.

No boom has come over the freight market, but there is a strong, advancing tendency in grain that seems destined to again bring about closing rates for the season that will make the profits of the vessel owner whose boats have been running wild about equal to those of the owner who contracted for a season's business. This is only an opinion based on present strength in the market. The grain movement must continue to the end in order to hold up the freight market. A blockade at Buffalo or even a moderate falling off in the present movement would reduce rates, as little assistance will be given the market by ore shippers. Most vessel owners have confidence in steady grain shipments to the close of the season, however, and although the receipts of grain at seaboard points are largely in excess of exports, the willingness shown by Duluth shippers to charter vessels ahead is a very strong factor in the market. If any large quantity of tonnage was offered to load at Duluth about the 10th of the coming month, it is more than probable that 4 cents could be secured on wheat to Buffalo. On ore from Ashland and Two Harbors it will be necessary, of course, to pay rates about equal to the high figures on grain, but shipments will be reduced accordingly. Already \$1.25 has been paid on ore from Ashland and \$1.10 from Marquette, but the short supply of coal for Lake Superior enables Escanaba shippers, who have moved the great bulk of the ore which they have sold, to get a few boats at 75 cents.

Lumber shipments from Lake Superior are also an important feature of the market. On one day of last week fifteen lumber carriers were in Ashland loading or awaiting a turn at the docks. They were all gotten out within a few days, and took with them 11,485,000 feet of lumber. This record of shipments from Ashland alone will give some idea of the growth of the lumber business at the head of Lake Superior. On a few cargoes to Chicago \$3.50 has been paid, and it is probable that the same figure could be secured to Buffalo if boats were offered. Representatives of lumber companies at the head of the lakes have been to Cleveland and other lake ports looking for boats, but have not been very successful. In this trade, as in the ore and grain business of Lake Superior, there is great difficulty in getting coal cargoes, and most vessel owners are opposed to having their boats go up light.



Built by the GLOBE IRON WORKS COMPANY.

ONE OF SIX THE MENOMINEE STEAMERS.

Supplement to MARINE REVIEW, Cleveland, O.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 13 Western Union Building, CHICAGO, ILL., Sept. 29.

The tugs are now trying coke as a smoke preventive. The kind they are using was kept in the oven but six hours instead of the usual time of forty-eight hours. In the six hours it is believed that all the smoke producing materials are removed, without too great loss of the heat producing qualities. At best, fuel for tugs will cost at least 60 per cent. more with coke than soft coal. All this means that towing charges, already considered too high by many vessel owners, must be materially advanced. This year they are 80 per cent. of the tariff. Next year they must be at least 90 per cent. to cover the extra cost of fuel. The tug men have nothing else to do but to burn the more expensive fuel, and charge more for their towing. They cannot afford to pay enormous fines for smoking, nor will they continue to be hounded as they have been this season. "No smoke" is expensive, but Chicago people are bound to have it.

It is said, from Washington, that Secretary Foster was going to reinstate Col. Ludlow, and that the light-house board will resign in consequence. If this is correct, the light-house board is entitled to more credit than usually is given it by marine men here. The board would do a splendid service to the lake marine by resigning. Its course in not seeing that there was money to light the new Squaw Island light-house when completed shows the timber of the present board. A new board could not be worse than this one in many respects, and might be better.

The Coty administration is endeavoring to have one of those hydraulic lift bridges, described in the REVIEW some time ago, at South Halsted street. Work has been commenced on the jack-knife bridge at Canal street. These two bridges are not far apart, and if a hydraulic lift is placed at South Halsted street the two will form the great curiosity of Chicago river. The fundamental idea in these bridges is to avoid the center pier, leaving the center of the river clear as a channel for boats.

Chicago underwriters say that there is nothing in the report of a meeting at Detroit to overhaul and reform lake insurance. It is evident that they will not be represented at the meeting, and will give the movement no support. When the Lake Carriers' Association was formed a committee on mutual insurance was appointed. What has become of it?

Col. Robert Rae is still in Washington, and from the reports in the newspapers, he is doing an immense amount of labor for the public good in securing government aid in locating yacht harbors for visitors to the world's fair next year. Col. Rae is the commodore of the Chicago Yacht Club, which is composed of live, public spirited citizens, who have undertaken to secure commodious harbors for visiting yachts next season.

The Mackinaw vessel reporter will willingly furnish signals without expense to all boats whose owners or captains apply for them. This would be a great help in correctly reporting passing boats, if marine men would generally adopt it. With a very little assistance on the part of steamboat captains the report of the boats passing Mackinaw could be made far more complete than it is, and vessel owners and agents would be the great gainers. All that is needed is a letter or postal card to Mrs. Luella Stimpson, at Mackinaw City, Mich., and she will furnish the whistle signals to be used when passing the most northerly point of the lower peninsula, where her signal station is located.

Contracts for New Boats in Canada.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Sept. 29.—The North Shore Navigation Company has awarded a contract to Captain John Simpson, of Owen Sound, for the building of a magnificent steamer for the "Soo" route. The vessel will be built this winter. She will be a propeller, considerable over 200 feet in length, with special qualities for making fast time; with elegant appointments, and will cost, it is estimated, nearly \$100,000. Captain Bassett, of the City of Midland, has left that steamer in order to superintend her construction. Captain F. Lafrance, formerly of the Carmona, has taken command of the Midland for the balance of the season, and will probably retain it next year.

An attempt is to be made by Captain Leslie to raise the sunken steamship Cynthia, which collided with the steamship Parisian, three miles below Montreal three years ago, in a fog. The Captain has sent his patent pontoons forward to the wreck. If he is successful there will be considerable money in the work.

The Montreal Transit Company has started the construction of a lake barge to carry 30,000 bushels. It will be ready for work early in the spring.

It is estimated that about 2,000,000 bushels of grain come through the "Soo" canal each season to Kingston. While the imposition of the tolls will not affect Kingston to that extent, the change is certainly making itself felt here. This being such an exceptionally fine fall, much of the Northwest grain might have been brought forward. As it is, all the boats owned here which went to Lake Superior are now going to Chicago. The Minnedosa and Glenora, which always went either to Port Arthur or Duluth, brought 120,000 bushels from Chicago this week.

A line of steamers to run from Duluth to Oswego will be placed in service next season by the N. Y. O. & W. R. R. An elevator will be built at the latter place. This will evidently affect Ogdensburg's trade.

Particulars of the Chicago Passenger Steamer.

The Lake Michigan and Lake Superior Transportation Company's passenger steamer, to be built by the Chicago Ship Building Company, is expected to be ready for service by June 1, 1893. The construction will be of steel throughout. The dimensions are: Keel 275 feet, over all 295 feet, beam 42 feet, depth to spar deck 24½ feet, depth to hurricane deck 32 feet, double water bottom for ballast 3½ feet. The triple expansion engines are 23, 38 and 62 by 36 inches stroke, and the two boilers will be double-ended Scotch, 11½ by 20 feet. The hull will be divided into seven water tight bulkheads, one at each end of the ship, two in the freight hold, one at each end of boilers, and one aft of the machinery. There will be stateroom accommodations for about 400 passengers. The passenger gangways will be broad, aft of the engine on main deck, onto a quarter deck finished in polished mahogany, where the clerk's office, steward's office, coat rooms and baggage rooms will be located. A grand staircase will lead from this deck to the saloon deck, having a double tier of staterooms on each side, making a fine apartment all finished in mahogany, lighted through a beveled glass dome. The dining room will be forward on the same deck, finished in birch, and will be one of attractions of the steamer. It will extend the full width of the ship and be about 50 feet long. It will be divided from the main saloon by large sliding beveled glass doors. The hurricane or promenade deck will be reached by a wide staircase from the main saloon, all under cover, and will be about 13½ feet wide and about 290 feet long on each side of the ship. A large ladies' parlor and music room will adorn the upper deck in the rear, while the gentlemen's smoking room will be located forward. The furniture, stateroom furnishings and general outfit will be of the finest. The ship is to be lighted throughout by electricity supplied by two dynamos, one of 500 and the other of 125 lights, furnished by two separate automatic driving engines. The steamer is intended to ply between Chicago, Mackinac islands and Sault Ste. Marie, in connection with the other steamers of this line, although nothing definite has as yet been decided upon. She will have two masts. The freight capacity will be about 1,500 tons, with which load she will be expected to make 16 to 17 miles an hour.

Capt. Maytham's Criticisms.

Only one criticism as yet printed on the story of H. W. Stewart, survivor of the Western Reserve disaster, seems deserving of attention. It is that of Capt. Thomas Maytham of Buffalo, who, when interviewed in Buffalo a few days ago, asked these questions: "How does Stewart know the vessel was being forced into the heavy sea at full speed, if, as he says, he was in his berth asleep at the time of the accident? How could he see the opening or crack in the deck over which he declares he jumped? The night was dark and such an opening could not be easily perceived. Had there been an opening of three feet in the deck, as stated by Stewart, the wheel chains would have parted at once. All control of the rudder would then be lost, and the vessel would have rounded too in the trough of the sea. A break of this size amidships would cause the ends of the vessel to drop at least 10 or 12 feet, no mention of which can be found in Stewart's interview."

Stewart's story of the vessel breaking in two will, however, be fully credited by most people well versed in lake marine affairs, mainly on account of the intelligence shown by the young wheelman since he has been brought into prominence by the accident. Still allowance must be made for the excited state of mind that would certainly follow any human being through the entire course of such an experience.

An inventor proposes to use a propeller torpedo to carry a life line ashore from wrecks. As shores where vessels are wrecked are not made to order, in nine cases out of ten the anchor would not ground even if it reached the shore.

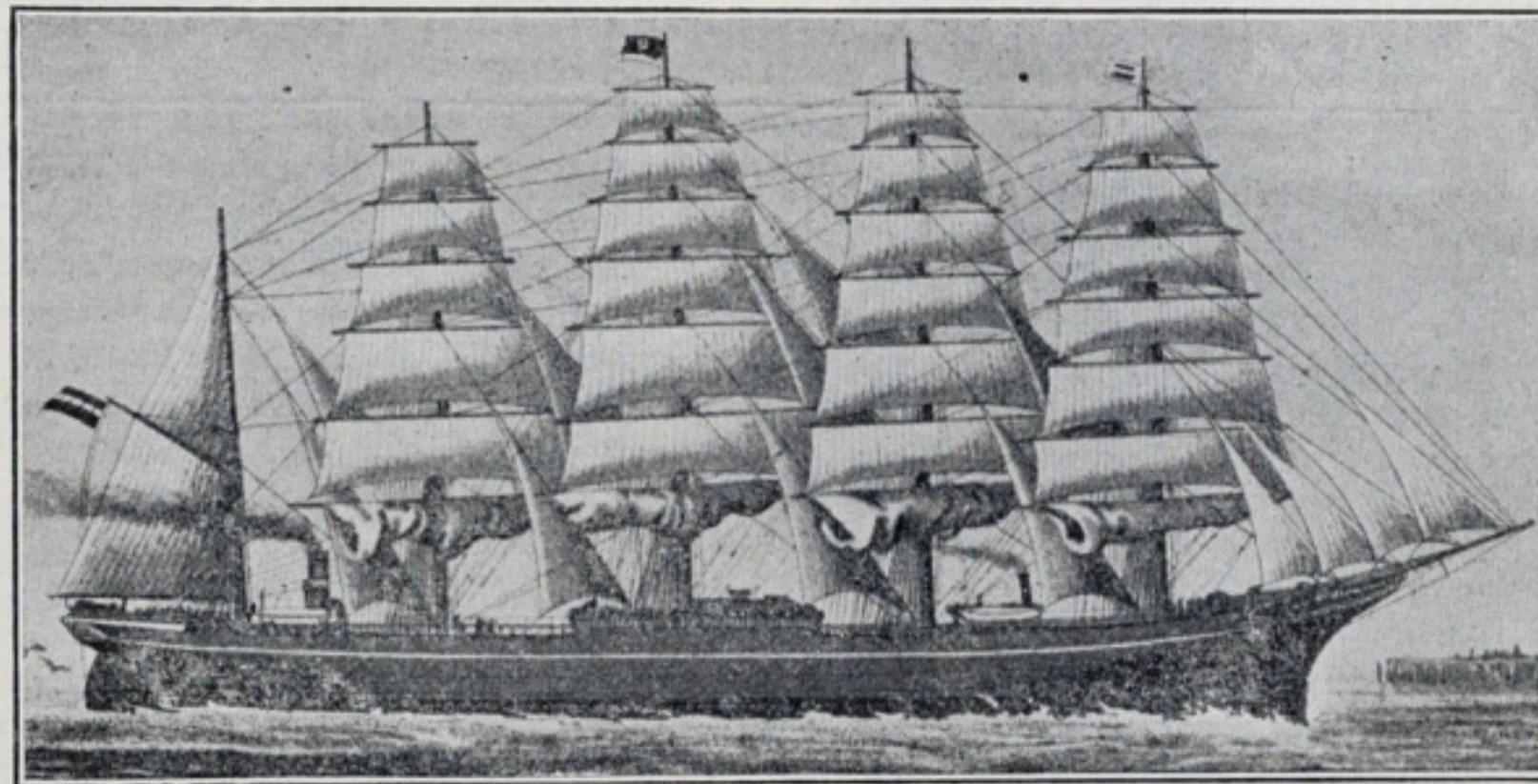
Names of Masts.

In the REVIEW of June 23 there was shown the five-masted ship Marie Rickmers with a description, dimensions, etc. A note was added stating that a book of phototypes of lake steamers would be presented to persons sending a correct list of names of masts, yards and sails. A great deal of interest was attracted by the description and the offer, and a number of replies were received. These replies agree practically on everything except the names of the masts. In looking up the matter definitely it was found that no authority was modern or explicit enough to even mention a five-masted ship. Some time and considerable trouble has been taken to ascertain the correct names of the sticks of the Marie Rickmers, as well as to settle a question that is seldom agreed upon by sailors. The names are fore, main, middle, mizzen and jigger. In reply to an inquiry addressed to Russel & Co., Port Glasgow, Scotland they say: "The five masts of the ship Marie Rickmers were named fore, main, middle, mizzen and jigger, the yards being foreyard, fore lower topsail, fore upper topsail, fore lower topgallant, fore upper topgallant, fore royal and fore skysail. The others likewise." The arrangement of yards follows as above on the main and middle, but on the mizzen and jigger Patterson's Nautical Dictionary names them as follows: Mizzen yard, mizzen lower topsail, mizzen upper topsail, mizzen lower topgallant, mizzen upper topgallant and mizzen royal; the gaff and boom on the last

them when on the sea, making the third mast after-main, and fourth and fifth mizzen and jigger. Two of the correspondents mention the lower yard on the third or middle mast as the "cross-jack" or "crojeck" yard, that being the name sometimes given on three masters, and claimed by Capt. Gilbert, of Duluth, who sailed for a number of years on salt water, to be the correct name. The only correct names of spars are given by him.

Having disposed of the spars and yards the sails are given: Fore sail or fore course, lower fore top sail, upper fore top sail, lower fore topgallant, upper fore topgallant, fore royal and fore sky sail. By putting main and then middle in the place of the word fore, the names of the sails on the first three masts are found, the jibs being called flying, standing or outer and inner or middle jib. The stay sails are fore top mast, main top mast and main top gallant; middle top mast, middle top gallant and middle royal; mizzen top mast and mizzen top gallant; jigger top mast and upper jigger top mast. The sails on the mizzen are: Mizzen course or "cross-jack," upper and lower mizzen top sail, upper and lower mizzen topgallant sail and mizzen royal. On the jigger or spanker is the spanker sail and gaff top sail.

E. M. Sims, West Bay City, in addition to sending a comprehensive reply adds: "Lake sailors occasionally catch a glimpse of a five masted sailing vessel. One of these, the David Dows, ran for a number of seasons but sunk in Lake



FIVE MASTED SHIP MARIE RICKMERS UNDER FULL SAIL.

mast being jigger gaff and jigger boom; or spanker mast and spanker boom is correct as well, according to the authority mentioned. The dispute has hinged on the last two masts, but now that is removed and a new name "middle" mast leaves the mizzen, the jigger or spanker to follow as one chooses.

Another authority is found for calling the third mast of a five-masted ship middle mast instead of mizzen. The owners in a circular, containing a lithograph of the Rickmers under full sail, give a description of the boat in German and name the masts as follows: *Fockmast, grossmast, mittlemast, kreuz and besahn-mast*. There is however an argument against the use of the word middle, because the word mizzen is from a French word meaning middle. The circular also states that the tops of the three first masts are 197 feet above the water line. It is curious to note that sixteen of the twenty-seven large vessels owned by the Rickmers are named Rickmers, the first names of different members of the family being prefixed.

Mr. W. J. Wood, now with the Globe Iron Works Company, Cleveland, but with Russel & Co., when the first five-masted ship was drafted, says that the masts to that vessel were named fore, main, mizzen, jigger and after jigger. A number of the replies give the names fore, main, mizzen, jigger and spanker, and one salt-water sailor adds significantly. "These are the names used at sea, but in a dictionary it may be different." John H. Norton, Duluth, gives an answer as he remembered

Michigan, while the A. B. Moore another five-masted sailing vessel is still running. Sailors who have worked on these boats have dubbed the masts after the first five days in the week as: Monday, Tuesday, Wednesday, Thursday and Friday. This system of nick-names probably originated in the first place with the Great Eastern which at first had six masts, which were called after the six days, the last one being Saturday. Saturday was found to be useless, however, and even on the Great Eastern was soon taken out."

The Corn Crop.

The total number of acres in corn this year according to reports of the department of agriculture is 72,851,500, less than any recent year except 1890. In addition to the decrease in acreage considerable allowance is made for a poor yield and the department estimates that it will not be over 1,661,000,000 bushels, over 400,000,000 less than last year. Bradstreets says that recent estimates make the yield much lower. The acreage, however, is nearly two millions greater than the average for ten years past. Ohio, Indiana, Illinois, Iowa, Missouri, Kansas and Nebraska are known as the surplus producing states. All of these are tributary to the lakes. During the past five years the aggregate receipts at principal western points of accumulation has averaged 6.82 per cent. of the total crop.

Lake Carriers' Association.

M. A. BRADLEY, President.

VICE-PRESIDENTS: James W. Millen, Detroit, Mich. John G. Keith, Chicago, Ill.
Frank J. Firth, Erie, Pa. W. S. Brainard, Toledo, O.
Thomas Wilson, Cleveland, O. R. P. Fitzgerald, Milwaukee, Wis.
Peter F. Miller, Buffalo, N.Y. Alex. McDougall, Duluth, Minn.
Charles H. Keep, Secretary, Buffalo, N.Y. Geo. P. McKay, Treasurer, Cleveland, O.
Harvey D. Goulder, Counsel, Cleveland, O.

The committee appointed by the Lake Carriers' Association to confer with representatives of the light-house board regarding the location of the several light-ships, secured through the civil sundry appropriation bill in the last congress, will meet the three light-house inspectors of the lakes at Detroit on Monday next.

At a meeting of the Cleveland managers of the association, Monday, a letter from Col. Jared Smith, light-house engineer of the tenth district, was read, suggesting discontinuance of the main light at Erie and the light at the corner of Water and Main streets, Cleveland. The Cleveland main light no longer serves any purpose in getting vessels into the harbor, as the piers and breakwater contain four lights, and a recommendation for its discontinuance was approved by the Cleveland managers, but the question of discontinuing the Erie light, to which a similar argument would seem to apply equally well, was left to the managers of Buffalo line boats which trade largely at Erie.

Work of the Ship Yards.

Mr. A. W. Colton, of Toledo, general manager of the Lake Erie Transportation Company, says there is no truth in the rumor that his company will build two boats similar to the Reynolds.

Rieboldt, Wolter & Co., of Sheboygan, have begun work on a wooden tug, 75 feet long for Capt. Gustav Gunderson, of Sheboygan. A tug for the Barry Brothers Chicago Independent Tug Line, to cost \$11,000, will also be built immediately by E. W. Heath of Benton Harbor, Mich.

A contract has been closed with the Hamilton Bridge and Tool Company to build a steel steamer for the Toronto & Niagara Navigation Company, which will be placed on the Toronto-Lewiston route next season. The new boat will be capable of carrying 2,400 passengers, and will cost \$250,000.

The wooden boat to be built by Wheeler & Co. of West Bay City for Hawgood & Canfield of Cleveland, will be of the same dimensions as the C. F. Bieleman, capacity about 2,600 gross tons from Escanaba. This steamer will, however, have more boiler power than the Bieleman, Sauber, Williams and other boats of her class.

Capt. McDougall and his associates in the American Steel Barge Company are deserving of a great deal of credit for building at Superior one of the finest dry docks on the lakes, especially when there is some question about a very large business for a dock at the head of the lakes for some time to come. With energetic management similar to that shown in caring for the Neshoto, a wooden boat, when the dock was barely finished and facilities were not on hand for repairs of this kind, there is no doubt of the success of the enterprise.

At the yard of the Craig Ship Building Company, Wednesday, was launched the first of the two car ferries contracted for by the Toledo, Ann Arbor & Northern Michigan Railway. The boat is named Ann Arbor No. 1, and will have a capacity for twenty-four loaded cars. These boats are 261 feet over all, 52 feet beam, and 18 feet deep. The engines, three in number on each boat, are compound, the cylinders being 20 and 40 inches by 36 inches stroke. They have each four steel fire-box boilers. They will do a big business in transporting loaded coal cars across Lake Michigan.

Official Numbers and Tonnage.

During the week ending Saturday, Sept. 17, the bureau of navigation, E. C. O'Brien commissioner, assigned official numbers to, and passed upon the tonnage of the following lake vessels: Steam—Excelsior, built and owned at Buffalo, 73.24 tons gross, 36.62 net, No. 136,325; Anna, built and owned at Grand Haven, Mich., 25.03 tons gross, 12.52 net, No. 106,966; Eliza, built and owned at Duluth, 15.25 tons gross, 8.24 net, No. 136,324.

The Menominee Transit Company's Fleet.

An engraving of one of the steel steamers of the Menominee Transit Company is presented with this issue of the REVIEW. The vessel is the Norman, one of six boats, all duplicates, built by the Globe Iron Works Company and engaged for two seasons past in the Escanaba ore trade. The names of the other vessels of the fleet are Briton, Grecian, Roman, German and Saxon. These steamers are 312 feet over all, 292 feet keel, 40 feet beam and 24 feet depth of hold. Their engines are triple expansion, the cylinders being 24, 38 and 61 inches by 42 inches stroke, and the indicated horse power 1,200. On a draft of 16 feet 8 inches this season these vessels are carrying cargoes running from 3,000 to 3,030 gross tons. Some information in detail regarding the work of the Norman during the season of 1891 is given below, but it is of course, not as good a showing as the record of this boat or any other steamer in the fleet during the present season. The work of all boats in the fleet during 1891 is fully equal to that of the Norman. In 1891 the season for all of these vessels was short, and low water was against large cargoes. The Norman did not leave Cleveland on her first trip until May 9 and was laid up Nov. 26. Following is the data:

Number of trips.....	27
Hours run	2,833
Miles run.....	32,990
Miles run per hour.....	11.64
Ore carried, Escanaba to Lake Erie ports, cargoes.....	26
Ore carried, gross tons.....	66,951
Average cargo of ore, gross tons.....	2,575
Grain carried, Duluth to Buffalo, cargoes.....	1
Grain carried, tons.....	2,163
Fuel used, soft coal, net tons.....	3,690
Average fuel per trip, net tons	137
Average fuel per hour, pounds.....	2,604
Average fuel per mile, pounds	223
Total cost of fuel.....	\$9,344.95
Average cost of fuel, per ton.....	\$2.80
Average cost of fuel per trip.....	\$346.10
Average cost of fuel per mile.....	\$0.28 3-10
Total cost of oils and tallow.....	\$393.00
Average cost lubricants per trip.....	\$14.54
Average cost lubricants per mile.....	\$1.18
Rope used, cost.....	\$119.47
Provisions, total cost.....	\$1,986.00
Provisions, cost per man per day.....	\$0.471
Total time handling cargoes and fuel.....	69 days 7 hours
Lost time, repairs, etc.....	1 day
Lost time, account of weather.....	14 days 14 minutes
Cost of engineers' supplies and repairs.....	\$177.39

In one respect particularly, that of speed, the record of this steamer is not fairly representative of the entire fleet. The Norman's average speed per hour for the season was but 11.64 miles, while that of the Briton was 12.81, Grecian 12.66, Roman 12.49, German 12.27 and Saxon 12.20. Notwithstanding this wide difference in the speed of the Norman and that of the other boats, the operating expenses of the other boats will not average higher than those shown above. A defective wheel during the greater part of the season was the cause of the Norman's poor showing in speed. This is proven by the fact that the speed of the Norman for twenty-four trips this season is equal to that of the other boats with no increase in operating expenses.

Stern Construction in the Cunarders.

Regarding the peculiar construction at the stern of the new Cunard steamer Campania, Engineering of London says: "The stern of the vessel has evidently received the most serious consideration of those responsible for the design, as although she has twin screws, there is still an aperture in the stern frame similar to that in an ordinary single screw steamer. This is made so that the propellers may work freely, though fitted close to the centre line of the ship in order to avoid damage from, or to, the quay walls. No struts are fitted at the stern frame for supporting the outer ends of the shafts, as in most twin-screw steamers. The use of these is avoided by the frames of the hull being bossed out aft to form the stern tubes, at the outer ends of which are fitted strong castings of steel. These serve the purpose of shaft brackets, and, being in continuation of the lines of the hull, are calculated to interfere the least possible with free propulsion. The rudder, which is fitted entirely under water, is of the single plate type, formed of a heavy steel casting with massive arms, between which a thick plate is fitted and riveted. Altogether the arrangement of the stern of the Campania strikes one as being out of the common in other respects than that of its immense size."

The ship chandlers' outfits on the Menominee fleet of steamers, illustrated in this issue, were furnished by Upson, Walton & Co., Cleveland.

Record of Speed and Big Cargoes.

[*Masters or owners of freight boats are invited to report improvements on this list.*]

Iron ore: Maritana, Minnesota Steamship Company of Cleveland, 4,260 gross, or 4,771 net tons, Escanaba to South Chicago; Maryland, Inter-Ocean Transportation Company of Milwaukee, 3,663 gross, or 4,103 net tons, Escanaba to South Chicago, draft 17 feet 4 inches.

Grain: E. C. Pope, Eddy Bros. of Bay City, 125,730 bushels of corn, Chicago to Buffalo, draft 14 feet 8 inches; W. H. Gilcher, J. C. Gilchrist of Cleveland, 113,885 bushels of wheat, Chicago to Buffalo.

Speed: Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company.....	\$100 00	\$.....	\$ 65 00
Champion Iron Company.....	25 00	.....	58 00
Chandler Iron Company.....	25 00	45 00	47 00
Jackson Iron Company.....	25 00	.....	.....
Lake Superior Iron Company.....	25 00	.....	41 00
Minnesota Iron Company.....	100 00	.....	75 00
Pittsburgh & Lake Angeline Iron Co.....	25 00	.....	.....
Republic Iron Company.....	25 00	.....	12 00
Ashland.....	25 00	.....	.....
Section Thirty-three.....	25 00	.....	5 00
Brotherton.....	25 00	2 00	2 50
Iron Belt.....	25 00	2 25	2 50
Aurora.....	25 00	8 25	.....

We are authorized to announce that at a meeting of the directors of the Cleveland-Cliffs Iron Company on Tuesday a dividend of 3 per cent. was declared, one-half payable on Oct. 10, and one-half on Jan. 10. In considering the question of a dividend the directors took into account the poor outlook in the iron market, and although making a division of profits at present they give no assurance of a continuance of dividends. Aside from this action on the part of the Cleveland-Cliffs company there is little of interest to be said of the older mining concerns. Stocks are not changing hands and values are in most cases quoted without transactions to sustain them. Slow sale this season for the product of hard ore mines is not looked upon as a permanent setback to this kind of ore. Hard ore has certainly been very slow of sale, excepting among the owners of large furnaces, but most producers are inclined to think that there is something of a "fad" in the feeling against it. Some bother is attached to crushing this ore and it is probably more costly in smelting, but on the other hand it contains very little moisture. Big crushers are now being introduced at the hard ore mines. A machine weighing twenty tons is being erected at Tower, Minn., by the Minnesota Iron Company. Officers of the Lake Superior and other companies interested in the work of draining Lake Angeline are informed that all the water will be drained out of the lake by the middle of next month.

Shipments of iron ore from Two Harbors up to and including Wednesday, Sept. 21, aggregated 916,051 gross tons, of which 525,803 tons were from the Chandler, 380,726 tons from the Minnesota, 2,525 tons from the Pioneer and 6,997 tons from the Zenith mine. On the same date shipments from Ashland aggregated 1,739,059 gross tons, divided among the different mines as follows: Ashland 161,351 tons, Aurora 248,761, Colby, No. 1, 2,125, Colby, No. 2, 48,761, Rand 17,700, Tilden 186,315, Taylor 14,640, Globe-Ashland 5,309, Iron Belt 123,522, Montreal, south vein, 3,383, Montreal, north vein, 25,749, Palms 48,834, Section 33, south vein 4,619, Section 33, north vein 3,133, Anvil 1,696, Brotherton 83,249, Comet 29,118, Carey 25,570, Newport 99,104, Imperial 3,456, Norrie 332,476, East Norrie 158,870, Odanah 3,193, Pabst 40,500, Eureka 5,086, Sunday Lake 41,684, Windsor 26,673, Jack Pot 2,717.

The Vermillion Iron Journal quotes Capt. J. H. Curdy, superintendent of the Cincinnati mine, which is one of the leading Mesaba properties, as saying that his company has ordered a hoisting plant and will sink shafts to the bottom of the formation before stoping the ore from above. The company now has one shaft down about 130 feet and is opening up drifts and

crosscuts. The only item of importance regarding new leases lately comes from the C. N. Nelson Lumber Company. This company has given to H. J. Goodwin of New York an option on 9,000 acres, and it is said that Moore & Foley will conduct the explorations.

Ore shipments from Ashland on Sept. 21 were 1,939,059 gross tons, against 986,725 gross tons on the same date in 1891.

Personal Mention.

The Sterling Mining Company, New Lisbon, Ohio, has established an office at 513 Perry-Payne Building, Cleveland. N. F. Wood, president of the company, is in charge.

Capt. E. M. Peck, of Detroit, Mr. F. W. Wheeler, of West Bay City and Mr. E. Platt Stratton of New York were among prominent marine men visiting Cleveland during the week.

Thomas Davidson of Milwaukee and Thomas Quayle of Cleveland were the surveyors on the wrecked steamer Neshoto. Mr. Quayle, who was one of the builders of the boat, represented the owners, and Capt. Davidson the underwriters.

Charles E. Kremer, marine lawyer of Chicago, will represent the owners of the steamer Nipigon in any legal proceedings that may result from the Nipigon-Vienna collision, in which the latter was sunk off Whitefish point, Lake Superior.

Officers of the Cleveland and Buffalo Transit Company, elected at a meeting of the directors held last week are: M. A. Bradley, president; George W. Gardner, vice-president; R. C. Moodey, treasurer; T. F. Newman, secretary and general manager.

Thomas Marks, vessel owner and forwarder of Port Arthur was in Detroit a few days ago and talked about various lake matters. He says the Manitoba wheat crop will be very large this year, and no less than 20,000,000 bushels will be forwarded from Port Arthur alone, but, of course, not all by lake. Mr. Marks says that he is still figuring on a steel boat that will have a whaleback deck and stern, with the ordinary steamer bow. The contract will go to a Canadian builder.

Publications.

The Atlantic Ferry, by Arthur J. Maginniss, published by Macmillan & Co., 121 Fourth avenue, New York, is not a technical book, but it contains a mass of statistical information on Atlantic steamers that can be found nowhere else. Ship builders will find it convenient as a book of reference. The author is an expert in naval architecture and students in that subject may learn considerable from the book. Biographies of men who were prominent in building up the trans-Atlantic fleet and the business for it are included in the volume.

More Bodies Recovered.

In addition to the list given last week two more bodies from the Western Reserve have come ashore at the Deer Park life saving station. One was Steward Burt Smith of Ashtabula. He was buried seven miles west of the station. The seventh unknown body found was dressed in black pants and overalls, supposed to be twenty-four years old and about 5½ feet in height. He was buried ten miles west of the station. Eight more bodies remain in the lake and it is thought the six that went down in the metallic boat in deep water will never be recovered. Nearly \$200 has been secured for the family of W. H. Seamen through the efforts of Mr. Johnson.

The Disgrace of Pinkertonism.

There has been much said and written of late about the disgrace of Pinkertonism. Reference has been had in this verdict to the character of the Pinkerton system and of the Pinkerton guards. But there is another disgrace that ought to be emphasized in this connection—the disgrace of a condition of things that requires the importation of dare-devil men to secure rights which local authorities do not guarantee. It is disgraceful that men can not be secured in the possession of their own property, disgraceful that men can not go to work except at the risk of their lives in an establishment from which others have voluntarily withdrawn. It would be well for those who join in the general cry against Pinkertonism to have a serious thought or two about the disgraces that are the occasion of Pinkertonism.—Iron Trade Review.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, } PROPRIETORS.
 F. M. BARTON, }
 HOMER J. CARR, Associate Editor and Manager Chicago Office,
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The books of the United States treasury department contain the names of 3,600 vessels, measuring 1,154,870.38 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of vessels of 1,000 to 2,500 tons on the lakes on June 30, 1891, was 310 and their aggregate gross tonnage 512,787.58; in all other parts of the country the number of this class of vessels was, on the same date, 213 and their gross tonnage 319,750.84. The classification of the entire lake fleet is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,592	756,751.53
Sailing vessels	1,243	325,131.06
Canal boats	703	72,515.42
Barges	62	20,472.37
Total.	3,600	1,154,870.38

Tonnage built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

No. of boats.	Net Tonnage.
1887	152
1888	222
1889	225
1890	218
1891	204
Total.	485,042.94

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 228 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014. Number of boats through St. Mary's Falls canal in 1891, 225 days of navigation, 10,191; tonnage, net registered, 8,400,685. Number of boats through Suez canal during 1891, full year, 4,207; tonnage, net registered, 8,698,777.

Entered at Cleveland Post Office as Second-class Mail Matter.

ALL reports from Washington go to show that Secretary Foster is anxious to restore Col. Wm. Ludlow and Commander Heyerman to duty. It has just leaked out that there was a minority report from the light-house board favoring the reinstatement of these officers, and mainly upon the strength of this report, Secretary Foster as well as Acting Secretary Grant of the war department is in favor of granting justice to the district officers. But the executive officers of the board, who have made all this trouble, threaten to resign if they are rebuked by Secretary Foster. The lakes would not suffer if these officers should leave the light-house service, and if on account of their threat of resignation the honest district officers are not granted justice, the case should not be dropped. Congress can and will be appealed to on the merits of this case. Let us review it briefly. The original action of the board, June 14 and 16, was unanimous and charged insubordination, as Secretary Foster and the newspapers have stated. This was on misinformation to the board from the executive officers. Nothing is left of this charge or in fact of any other. The late district officers have been sustained to the fullest extent both by the recommendation and reports of their successors, Gen. Poe and Commander Read, and by the orders and instructions of the board itself in adopting their locations of lights and increasing the number to forty. The board formerly proclaimed itself limited by law to thirty-eight lights but has authorized the larger number without additional legislation. Notwithstanding all this and the fact that it is now universally admitted that the late district officers were right in every particular, so that in fact their action saved the board itself from opprobrium and condemnation for a wholly ignorant and erroneous placing of the lights, with certainly fatal results to all concerned, the board still lacks the common honesty and manliness to admit its error and restore the district

officers, to whom they are indebted for vital and important services, and who took upon themselves the responsibility of interposing between the unalterable facts of the St. Mary's river navigation and the obstinate and senseless orders given them by the executive officers of the board. It is surely a case of most conspicuous loyalty, and only men trained to a disciplined and conscientious performance of duty could have done it. In contract the action of the board, or the members represented by its majority vote of Sept. 5, is the lowest pitch of pusillanimity. In event of failure in the present effort with Secretary Foster, congress will do well to inquire by what means such a notorious exhibition of maladministration and abuse of authority could occur in a service of such vital and universal importance to the maritime interests. It is evident that there is something seriously amiss in the organization of the board and of the laws and regulations controlling it, when such a travesty of serious official business can be presented to the eyes of an astonished public.

WE HASTEN to correct the statement that Congressman Thomas A. E. Weadock of Bay City, Mich., voted against the deep water appropriation in the last session of congress. Mr. Weadock voted for the appropriation. The error was caused by an impression based upon his attitude toward the question of deep water in the connecting channels of the lakes, which was not altogether of a kind calculated to suit earnest advocates of the big river and harbor projects now being carried on. Although voting for the deep water appropriation, Mr. Weadock, is desirous, it seems, of suiting a local opinion that prevails among some vessel owners in Michigan in preference to the general advancement of lake navigation. "It may occur to you," he says in a note regarding his vote, "that I am aware of the wishes of marine men here, as well, at least, as gentlemen residing in Cleveland." This probably means that he leans toward the false opinion that a deep waterway between Chicago, Duluth and Buffalo would not be advantageous to intermediate ports such as he represents.

IT IS announced from Washington that the new commissioner of navigation, Mr. E. C. O'Brien, will make certain recommendations in his coming annual report regarding the load line question. If Mr. O'Brien goes very far into this subject, he will probably find that he has struck a more perplexing problem than has ever fallen to his lot before acquiring a public office. There is at present no crying need of a load line law more stringent than that now in force in this country. The constant increase in the size of vessels on the lakes places the question of need of a law of this kind further from reach each year, as the freeboard carried by modern lake steamers, on account of insufficient depth in channels, is far beyond the requirements of any American discipline of the order of Plimsols.

MASTERS ought to make every effort to have their vessels reported when passing Mackinaw. The reporters in the Straits and at the different important points along the rivers are anxious to report all vessels when it is possible for them to do so, and the general marine interests have a claim upon masters to the extent that they should render assistance in having their vessels reported. This is especially true of Mackinaw where great difficulty is found in getting the names of passing vessels.

The treasury department on Thursday last issued a circular to customs officers announcing the suspension pending further investigation of the circular issued two weeks ago regarding tolls on freight in vessels passing through the St. Mary's Falls canal. The suspended circular provided for the collection of tolls in the case of vessels passing through the canal consigned to American ports, but whose manifests state that the cargo is to be exported to Canada either to be retained there or to be exported therefrom to a foreign country other than the United States. The reason for the suspension of the first order is not given.

Short History of Lake Navigation.

(By C. H. Keep, Secretary Lake Carriers' Association.)

EARLY ENGLISH NAVIGATION.

Immediately after the English took Fort Niagara in 1759, they commenced to build vessels above the falls. Sir William Johnson says that he visited Navy island, in the Niagara river, where a sloop and a schooner were being built by the English. Two or three additional sailing vessels were built soon after at Street's creek, just above Navy island, on the Canadian side of the Niagara river. One of these vessels was named the Gladwin. This small fleet was prominent in the siege of Detroit by Pontiac in 1763. After the siege two of them returned to a little bay at the foot of Grand island, Niagara river, where Sir William Johnson says they were burned. The locality was henceforth known by the name of Burnt-Ships bay.

In 1755 the English built two sloops at Oswego named the Oswego and the Ontario. In the same year Gen. Shirley placed on Lake Ontario a sloop and a schooner, each of 60 tons burden, besides a number of galleys and whale boats. Until the time of the American revolution, few new vessels were put on Lake Ontario. Merchant and whale vessels taken from the French at the time of the conquest of Canada continued to form the fleet of that lake. After the American revolution the commerce of Lake Ontario commenced to grow in importance and in the early part of the present century its commerce greatly exceeded in importance and value that of all the other lakes. The first American vessel ever placed on any of the great lakes after the revolution was built at Hanford's Landing, 3 miles below Rochester, N. Y., in 1798. She was called the Jemima, and was built by Eli Granger, and July 22, 1798, was sold to Augustus and Peter B. Porter.

About the year 1800 the Western Inland Lock and Navigation Company completed improvements for inland navigation between the Hudson river and Lake Ontario, by the construction of a canal from Mohawk river to Wood creek, which empties into Oneida lake, which locks on the Mohawk river and also on Wood creek. In the year 1800 there were three vessels on Lake Ontario owned by Oswego forwarders. In 1810 the commerce on Lake Ontario was principally in the hands of two firms, Porter, Barton & Co., and Townsend, Bronson & Co., who were the lessees from the state of New York of what is called the Niagara portage. A few years before this date, the principal course of business on Lake Ontario had been from Oswego to Queenstown, on the Canadian side of the Niagara river.

In 1806 Porter, Barton & Co. built a road from Lewiston, on the American side of the Niagara river, to Schlosser's dock, a point above the falls, where the channel again becomes navigable. They did not succeed, however, in diverting the commerce from the Canadian portage until the embargo and non-intercourse acts of 1807 to 1809, which put an end to the business on the Canadian side of the river.

By 1810 the commerce of Lake Ontario had grown so that it furnished regular employment to a considerable number of coasting vessels. These vessels were employed in carrying the Indian annuities, stores for western military posts, the goods and peltries of the fur company, Onondaga salt for the Pittsburgh market, which was one of the principal articles of lake commerce, and provisions and supplies for the straggling western settlements. The schooner Charles and Ann, built in Oswego in 1810, of 100 tons register, attracted great attention on account of its size. By 1818 the marine fleet on Lake Ontario numbered sixty vessels. Besides the trade above mentioned there had grown up a considerable commerce in timber and staves. These articles were picked up by schooners at points on the south shore of Lake Ontario. For want of harbors the timber was usually floated out to the vessels and the staves were carried out in scows. These articles were carried by the schooners to Cape Vincent and Carlton's island and other points at the head of the St. Lawrence river, where they were unloaded, made into rafts, and floated down the St. Lawrence to Montreal and Quebec.

The first American vessel built on Lake Erie was the schooner Washington, built near Erie, Pa., in 1797. She navigated Lake Erie during that season; was then sold to a Canadian and carried on wheels around the falls to Lake Ontario, where she sailed from Queenstown for Kingston in 1798 as a British vessel, under the name of Lady Washington. In 1816 the whole tonnage of the lake vessels at all Lake Erie ports, including Detroit, was 2,067 tons. The vessels ranged in size from 10 to 99 tons, except two, which were of 102 and 134 tons respect-

ively. In 1805 Buffalo was made a port of entry, and at the district of Buffalo creek there were enrolled and licensed in the year 1817 seven vessels, with a total tonnage of 459 tons. In 1819 there were registered in the same district seven vessels, with a tonnage of 473 tons, but of these vessels one was a steamer. The first steam vessel that ever navigated the lakes was the Ontario, built at Sackett's Harbor, N. Y. She was 110 feet long, 24 feet wide, and 8½ feet deep, measuring 240 tons. She made her first trip in April, 1817. The Ontario was the first steamer ever placed on water subject to a swell. She was built under a grant from the heirs of Robert Fulton, and marks an important era in steam navigation. So long as steam navigation was confined to the rivers the weight of the shaft and paddle-wheels was relied upon as sufficient to keep them in place on their bearings. The Ontario was constructed on this plan. On her first trip she encountered considerable sea and the waves lifted the paddle wheels, throwing the shaft off the bearings and causing the revolving wheels to tear to pieces their wooden coverings. The vessel was taken back into port disabled, but her repairs included a proper device for securely holding the shaft in its place. After this she navigated successfully.

In 1818 the steamer Sophia, 75 tons, was built at Sackett's Harbor to run as a packet between that port and Kingston. In the same year there was built at Black Rock, now part of Buffalo, N. Y., the steamer Walk-in-the-Water, which was the first steam vessel that navigated any of the lakes above Ontario. She was launched May 28, 1818, and started on her first trip from Black Rock to Detroit on the 25th of August in the same year. Her machinery had to be brought from Albany to Buffalo, a distance of 300 miles, in wagons drawn by five to eight horses each. As this vessel ran regularly to and from Black Rock harbor and not to the present harbor at Buffalo, she had to proceed a short distance down the Niagara river. While she could navigate down stream very safely, her power was not sufficient to enable her to make headway against the strong current at the head of the Niagara river. Resort was therefore had to what was known in the early days as a "horned breeze." The Walk-in-the-Water was regularly towed up the Niagara river by a number of yokes of oxen. After she reached the head of the river above the swift current, she would proceed on her way without such assistance.

The Walk-in-the-Water made her trips regularly between Black Rock and Detroit, making the round trips in nine to ten days. She was wrecked and lost on the beach at Buffalo, in November, 1821, but during the winter of 1821-22 a second steamer was built at Buffalo named the Superior. The machinery of the Walk-in-the-Water was used in the Superior. Soon after this the first high-pressure steamer on the lakes was also built at Buffalo. She was named the Pioneer. Her machinery was built at Pittsburg, Pa., and brought to Buffalo in wagons. In 1841 there was launched at Oswego, N. Y., the first lake propeller, said also to be the first screw steamer ever built for business purposes. Her building came about in this way: A Canadian shipowner living at Brockville, Ontario, wrote to an Oswego friend, who was temporarily in New York city, saying that he had heard that there was on exhibition at the iron works of Hogg & Delameter, in New York, a new kind of steamer wheel invented by Ericsson, and asking him to go and look at this model to see whether it struck him favorably. As the Oswego gentleman had no particular knowledge of machinery, he asked Capt. James Van Cleve, of Lewiston, New York, a lake navigator, who was also in New York on a visit, to go with him to see Ericsson's new wheel. Van Cleve examined Ericsson's model carefully, and was so favorably impressed that he asked to see the inventor. He had a two-hours' conversation with him, and became an entire convert. At the close of this conversation Ericsson offered Van Cleve a half interest in his patent for the northwestern lakes if he, Van Cleve, would place on Lake Ontario within a year a steam vessel, using the new method of propulsion. Van Cleve assented to this proposition, and a written contract was drawn up on the spot.

This interview took place in December, 1840. Van Cleve returned to Oswego, where he interested several other gentlemen with him and in 1841 they built the propeller *Vandalia* of 138 tons. She made her first trip in November, 1841, and proved a success in all weathers. In the spring of 1842 the *Vandalia* passed through the Welland canal to Buffalo, where she was visited by large numbers of people who were curious to see this new departure in steam navigation. The firm of Hollister Brothers, of Buffalo, seemed to have become satisfied that

the new method was an entire success, for in the year 1842 they built two new propellers, the Sampson and Hercules.

By the year 1840 the commerce of the upper lakes had grown to considerable proportions and was increasing very rapidly. The early commerce was nearly all west bound and curiously enough the cargoes carried west bound consisted for the most part of flour, grain, provisions, and other supplies for the western settlements. As railroads were not yet built in the upper lake country, the carrying of passengers was a large element in the business and was indeed its chief dependence. On Saturday, July 12, 1834, the first vessel arrived at Chicago from the lower lakes. This was the new schooner Illinois of 100 tons register. Two days later the schooner Philip arrived at the same port.

In 1836 the direction of the grain business turned, and the first cargo of grain from Lake Michigan arrived in Buffalo. It was brought by the big John Kenzie from Grand River, Mich., and consisted of 3,000 bushels of wheat. By 1840 a regular movement of grain from the west to the east had become thoroughly established. The traffic was carried on by a small number of sailing vessels of about 125 tons each, and a half-dozen side-wheel passenger and freight steamers.

The following shows the rapid growth of the business of the port of Chicago. In 1834 there were 176 arrivals at that port with a total tonnage of 5,000 tons. This business consisted chiefly of three small schooners plying on short distance route between Chicago and St. Joseph, Mich. In 1835 the arrivals increased to 250 and the tonnage to 22,500 tons. In 1836 there was a further increase in arrivals to 450, with a tonnage of 60,000 tons.

The following table shows the shipments of flour and grain from 1840 to 1860:

Year.	Flour.	Wheat.	Corn.	Oats.	Rye.	Barley.
1840.....		10,000	.....	.....	.....	.....
1845.....	13,752	956,860	.....	.....	.....	.....
1850.....	100,871	883,644	262,013	158,084	.....	22,872
1855.....	163,419	6,298,155	7,517,625	1,888,538	19,326	92,011
1860.....	698,132	12,402,197	13,700,113	1,091,698	156,642	267,449

In the early years of the grain trade the grain was unloaded at Buffalo by hoisting it in barrels from the hold and after weighing, transferring into canal boats alongside the vessel. This work was done by the crew, and it required three or four days to unload a cargo of 5,000 bushels. The rapid multiplication of the vessels and the growth of this branch of the business soon made it necessary to adopt some other method of unloading grain. In the winter of 1842-43 the first grain elevator was built in Buffalo. The schooner Philadelphia, 123 tons, with 4,515 bushels of wheat was the first vessel to be unloaded. In the year 1843 this elevator unloaded eighty-eight vessels, whose total cargoes amounted to 229,260 bushels. In 1849 the lake fleet had grown to large proportions and the total tonnage of the lakes as given by the board of lake underwriters was 161,832 gross tons, valued at \$7,868,000, as follows:

Kind of Boats.	Tons.	Value.
Side-wheel steamers.....	45,067	\$3,380,000
Propellers.....	15,685	950,000
Sailing vessels.....	101,080	3,538,000

The rapid growth of the fleet continued, and the following table shows the tonnage of the lakes in 1862:

Kinds of boats.	No.	Tons.	Value.
Steamers.....	147	64,669	\$2,668,900
Propellers.....	203	60,951	2,814,000
Barks.....	62	25,118	621,800
Brigs.....	86	24,871	501,100
Schooners.....	989	204,900	5,248,900
Sloops.....	15	2,800	11,850
Total.....	1,502	383,309	\$11,866,550

It will be noticed that the side-wheel steamers still lead the propellers in number, and are only slightly behind in value.

These side-wheel steamers were finely fitted up for passengers and did an immense business. This business reached its culminating point at the time of the war, and thereafter it rapidly declined. Railroads had been constructed on both sides of Lake Erie, and the passenger business soon passed out of the hands of the vessels and into that of the railroads. The freight business, however, continued to grow enormously until it is now the greatest inland commerce in the world.

TO BE CONTINUED.

Around the Lakes.

John Stevenson has been appointed master of the steamer Dean Richmond, Capt. Stewart resigning on account of sickness.

John Karcher and Henry Lay of Sandusky have purchased from W. H. Herbert and others the steamer H. C. Schnoor for \$5,000.

The tug Brockaway of Port Huron, Capt. A. D. Thompson, will in future be stationed at Garden river and the Merrick will be at the Sault as usual.

Following are some cargoes, gross tons, taken out of Two Harbors last week by big steel vessels: Maritana 3,057, Mariposa 3,035, Sagamore 2,870, E. C. Pope 2,753 and Onoko 2,475.

Capt. White of the fast steamer Pioneer says that he did not claim that the steamer ran from Buffalo to Detroit in 15 hours and 10 minutes, but that the time was one hour more.

The steamer Maggie Duncan was sold by the sheriff of Cook county and was bid in by Frank Higbie of Chicago and turned over to John Duncan, builder and original owner, Frank Clark of Detroit having failed to make payments on her.

The suit brought by Gilmore Scranton against the government, seeking to have removed the light-house pier in front of his land on St. Marys river, has been decided adversely by the federal court at Marquette, the judge holding that the government had paramount rights over the navigable waters of the country.

Dimensions of the Detroit yacht Truant constructed by the Herreshoff Manufacturing Company of Bristol, R. I., for the Newberry estate, are as follows: Over all, 131 feet; length on water line, 110 feet; beam, 17 feet 10 inches; depth, 11 feet; draught, 6 feet. The engines are triple-expansion, of the latest Herreshoff type.

The work of the Swain Wrecking Company of Detroit in releasing the steamer Neshoto from Keweenaw point is especially commended by the owners of the boat. When the tug Favorite started for Lake Superior from the Straits there were few vesselmen in Cleveland who thought the Neshoto would ever be gotten off.

C. A. Coon of West Superior, who was interested in the formation of a company which made two attempts recently to get a quantity of copper from the steamer Pewabic, sunk on Lake Huron, now claims that the wreck was not found by either of the expeditions. He says that Diver Pelkey lost his life on a ledge of honey combed rock in the locality where the Pewabic is thought to have gone down. Mr. Coon controls the patents on the diving apparatus used in this work.

Capt. John Langley has resigned as manager of the St. Joseph & Lake Michigan Transportation Company at St. Joseph and has sold his stock. Two-thirds of the stock is held by J. G. Williams, F. W. Wheeler being interested in the other third. The line consist of the Lora and Soo City. The latter will be sold soon, and there is talk of new boats for the line. R. A. Johnston has been elected manager, and his experience in marine affairs will enable him to look after the interests of the line.

Grain at Chicago and Duluth.

Stocks of grain at Chicago and Duluth on Monday, Sept. 26 were:

	Chicago.		Duluth.
	Wheat, bu.	Corn, bu.	All wheat, bu.
In store.....	7,229,451	4,498,729	2,227,302
Increase last week.....	478,722	.....	229,711
Decrease last week.....	.....	319,505	.....
Increase over same time last year	4,177,729	136,280	.....

In addition to the above there is 2,470,931 bushels of oats, 256,817 bushels of rye and 100,933 bushels of barley in store in Chicago.

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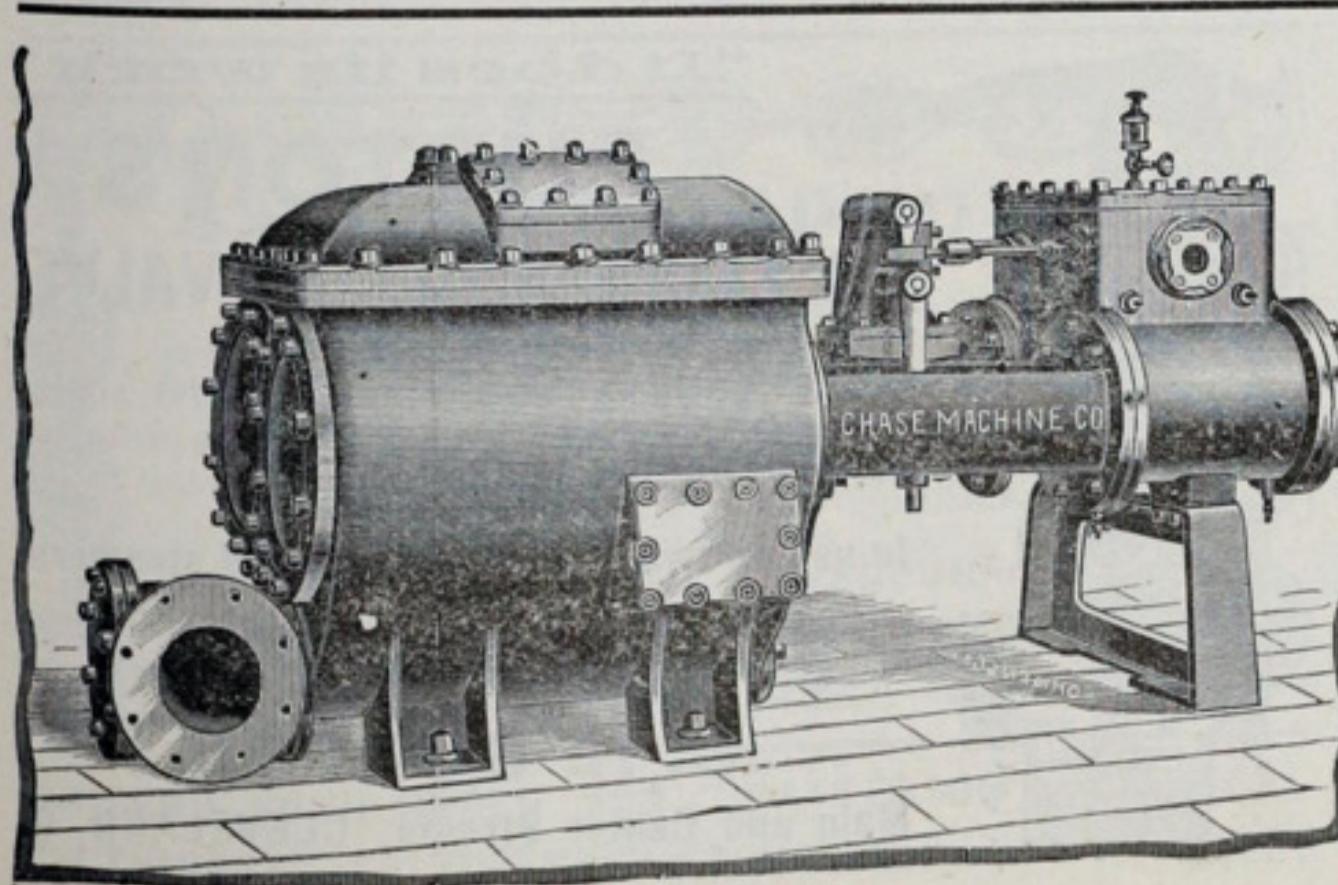
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Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind or wishing to purchase vessels, are invited to take advantage of the same offer. Employers in need of professional men or men who want positions may avail themselves of the opportunities offered. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 516 Perry-Payne Building, Cleveland, O.

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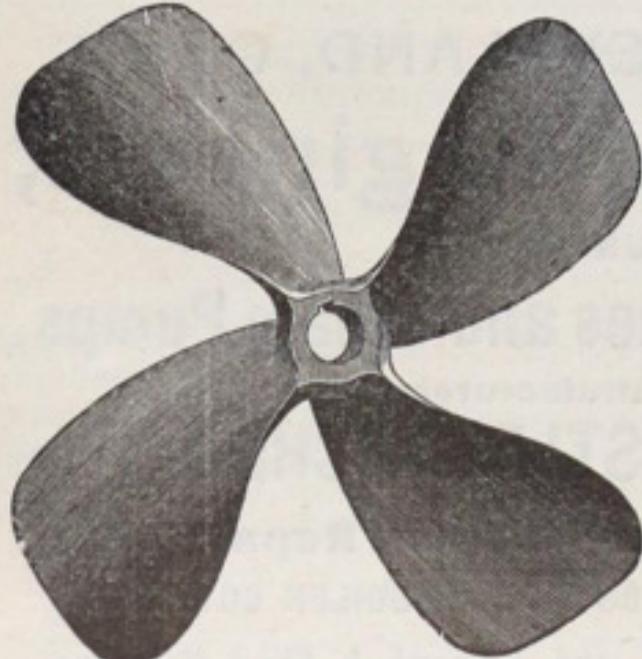
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UNITED STATES ENGINEER OFFICE, 34 West Congress street, Detroit, Mich., September 8, 1892. Sealed proposals for furnishing by the hour 1 dredge, 1 tug and 2 dump scows, for use at Detroit river, Mich., will be received at this office until 2 p. m., October 8, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. O. M. POE, Colonel, Corps of Engineers, etc. Oct. 6.

UNITED STATES ENGINEER OFFICE, 121 Franklin street, Buffalo, N. Y., October 1, 1892. Sealed proposals for (1) Extension of north pier, Erie Harbor, Pa. (2) Rebuilding and repairing superstructure, breakwater and pier, Dunkirk Harbor, N. Y., will be received at this office until 2 p. m., November 1, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office MAJOR E. H. RUFFNER, Corps of Engineers. Oct. 20.

TREASURY DEPARTMENT, WASHINGTON, D. C., Sept. 3, 1892. Sealed proposals for constructing a steam propeller, to be named William Windom, for the United States revenue cutter service, will be received at this department until 2 o'clock p. m., Wednesday, Oct. 5, 1892. Bids must be in accordance with the instructions on page 5 of the specifications, and be addressed to the secretary of the treasury, and indorsed on the envelope "Proposals for construction of steam propeller for United States Revenue Cutter Service." Specifications for the work will be furnished to parties desiring to submit bids upon application to this department. The right is reserved to reject any or all bids, and to waive defects, if deemed for the interest of the government to do so. CHARLES FOSTER, Secretary.

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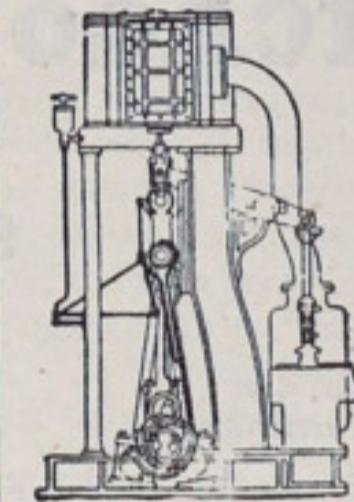
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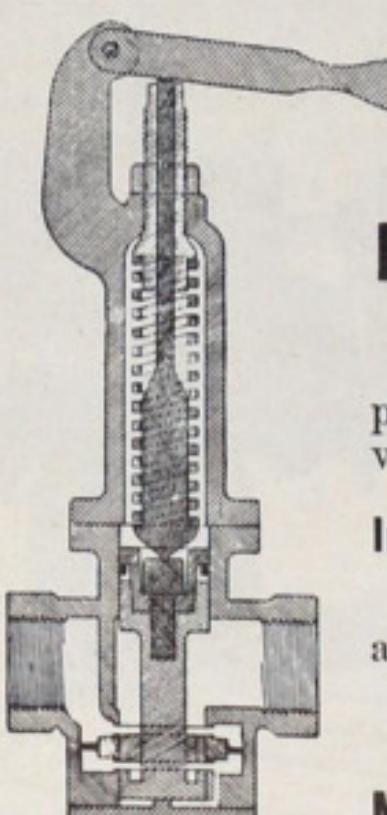
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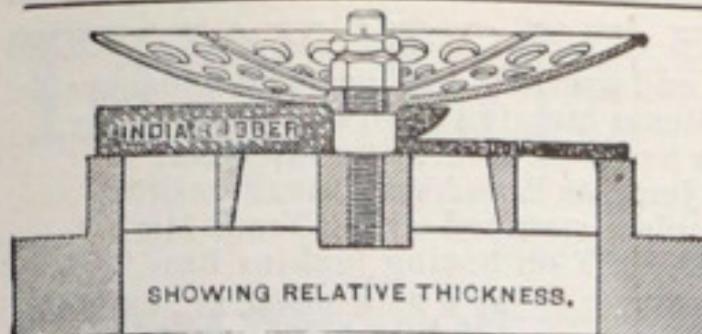
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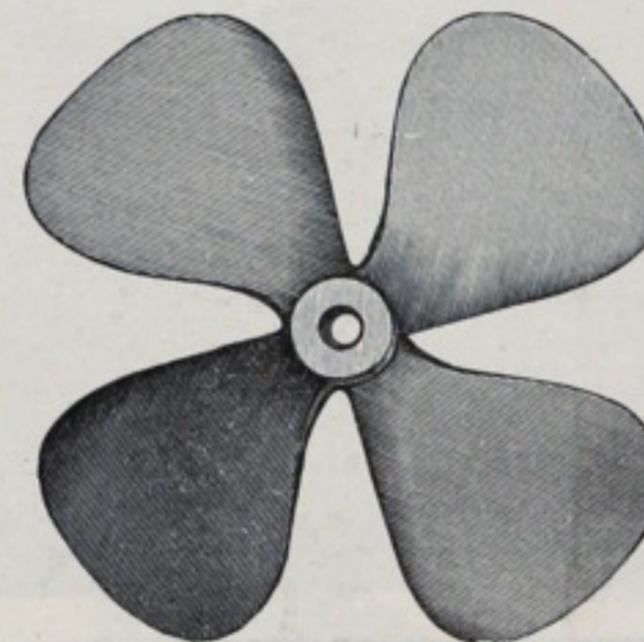
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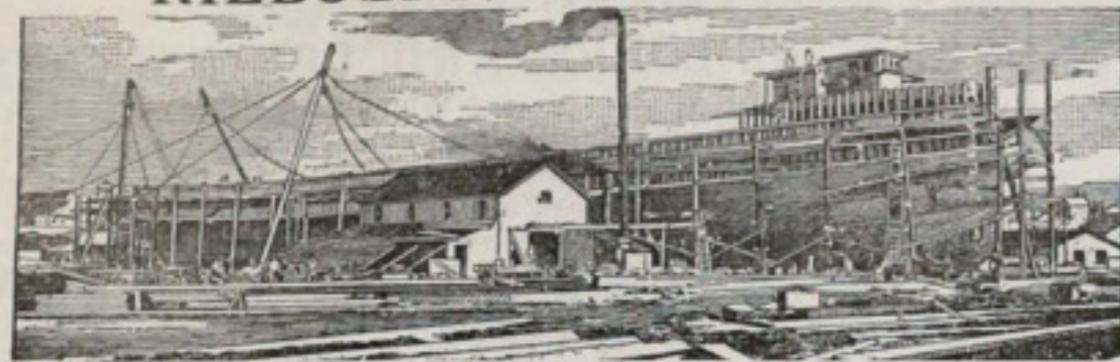
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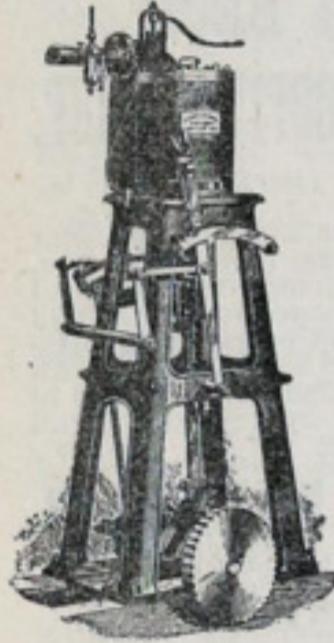
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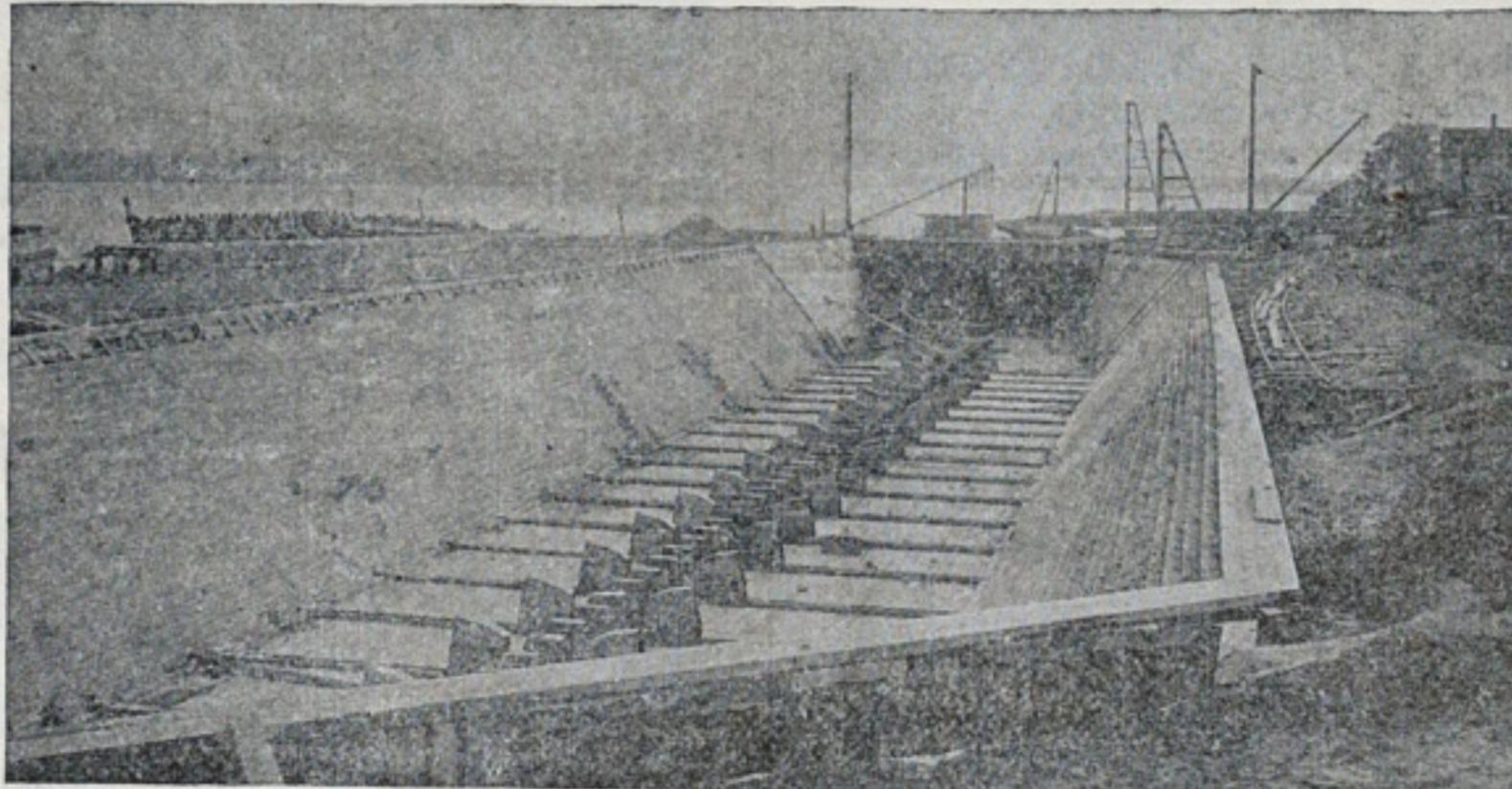
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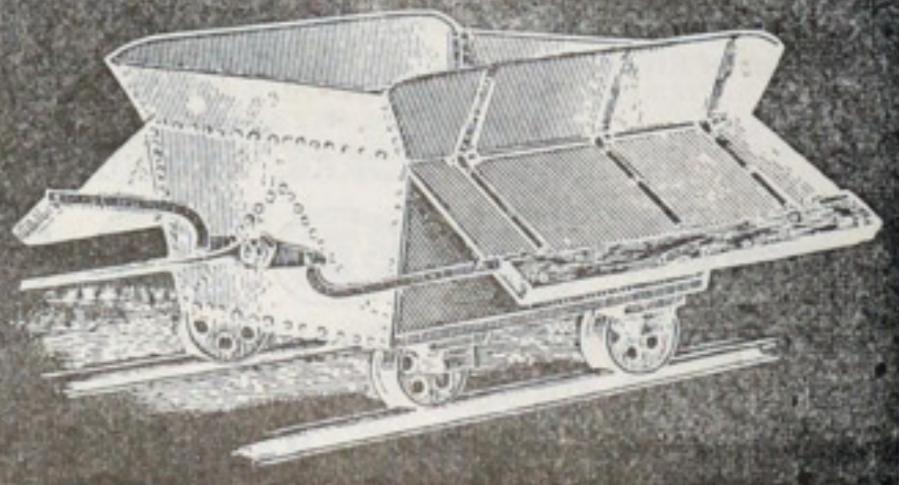
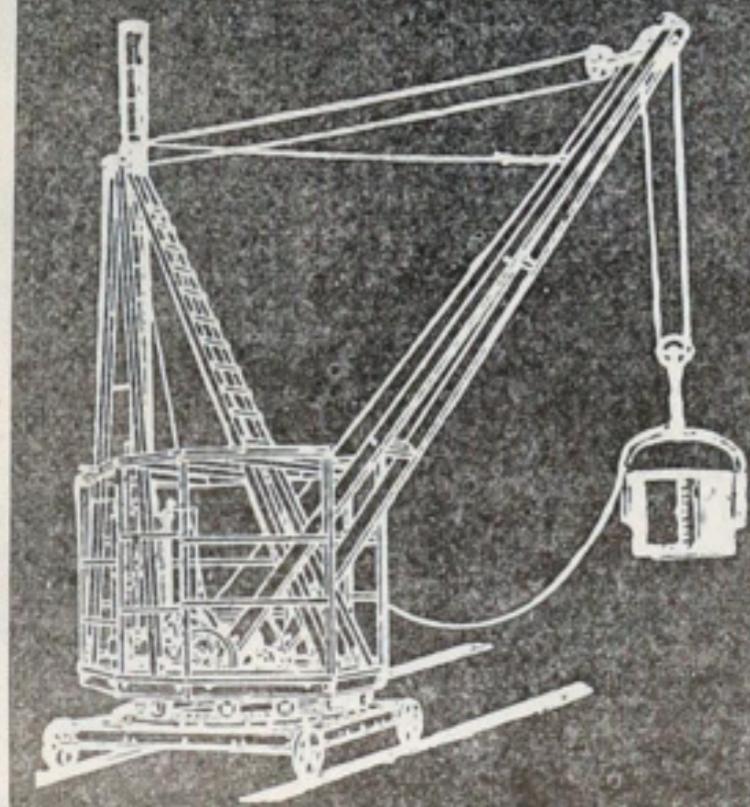
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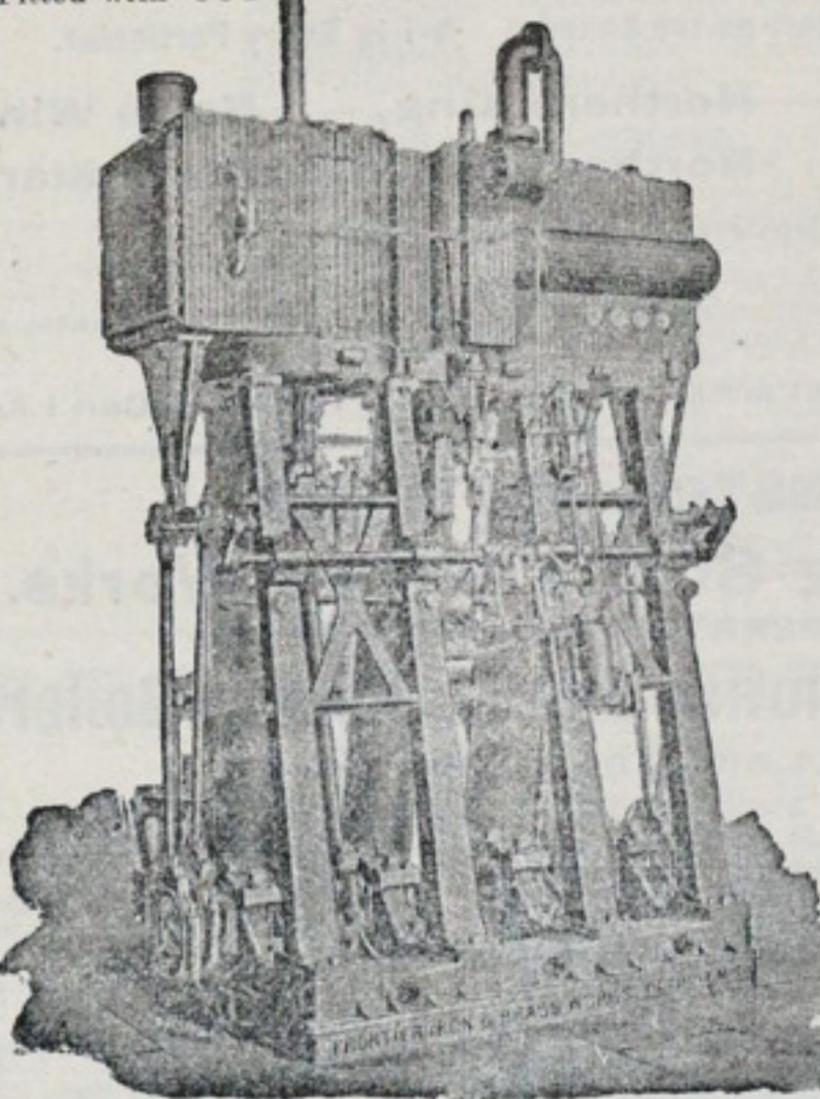


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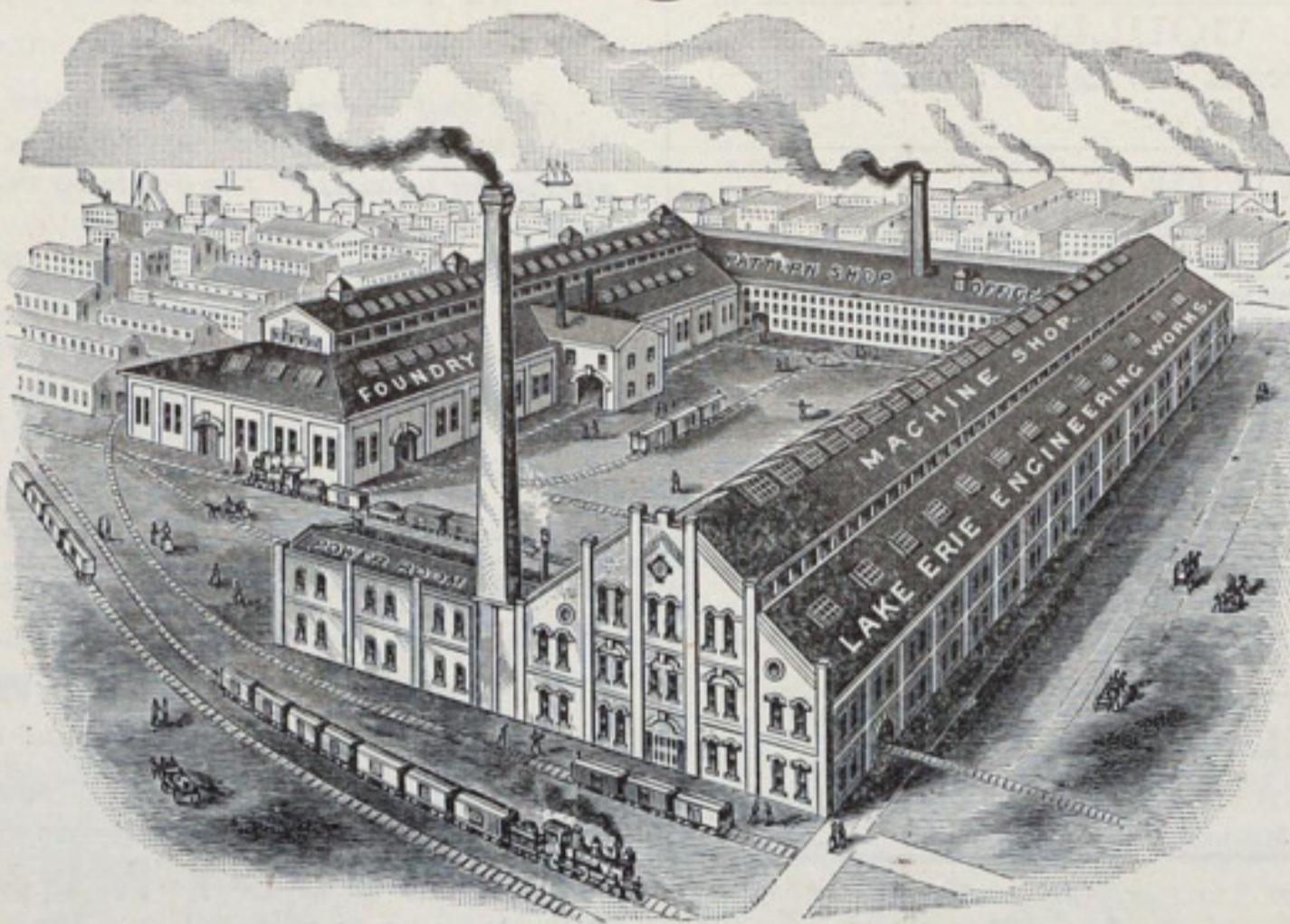
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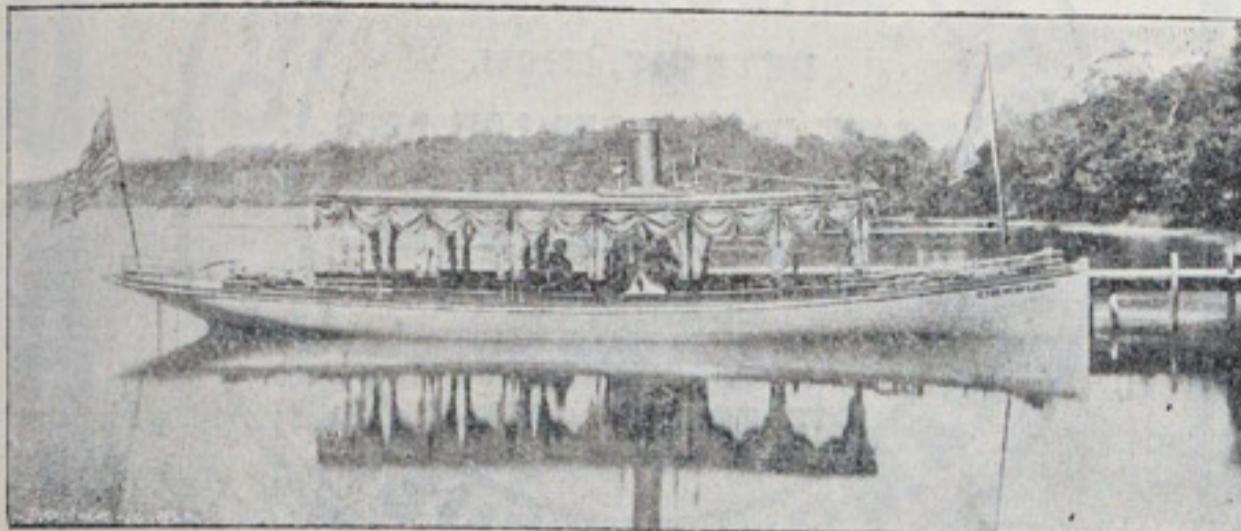


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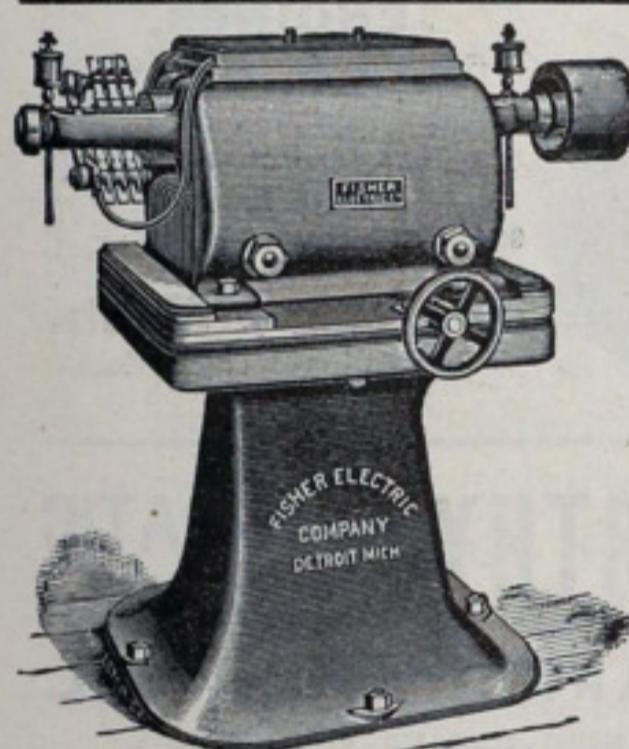


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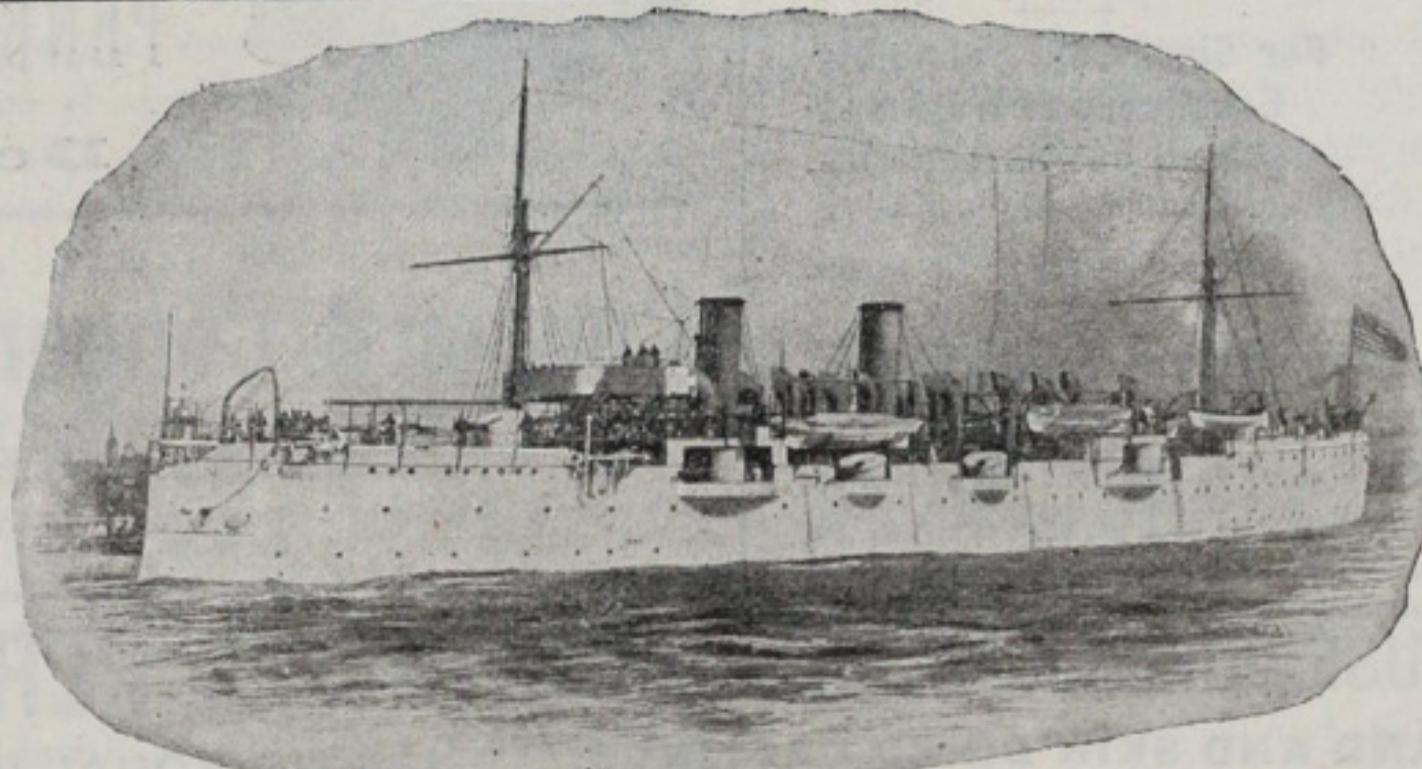
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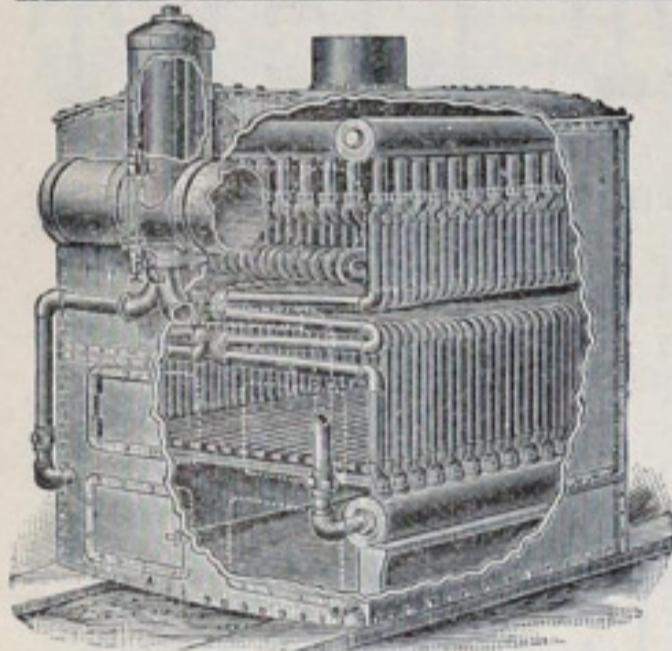
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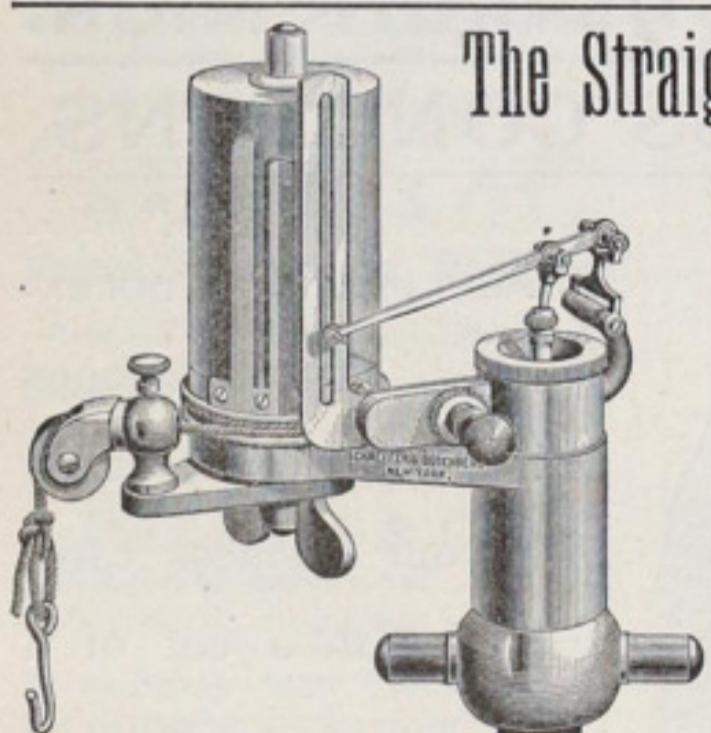
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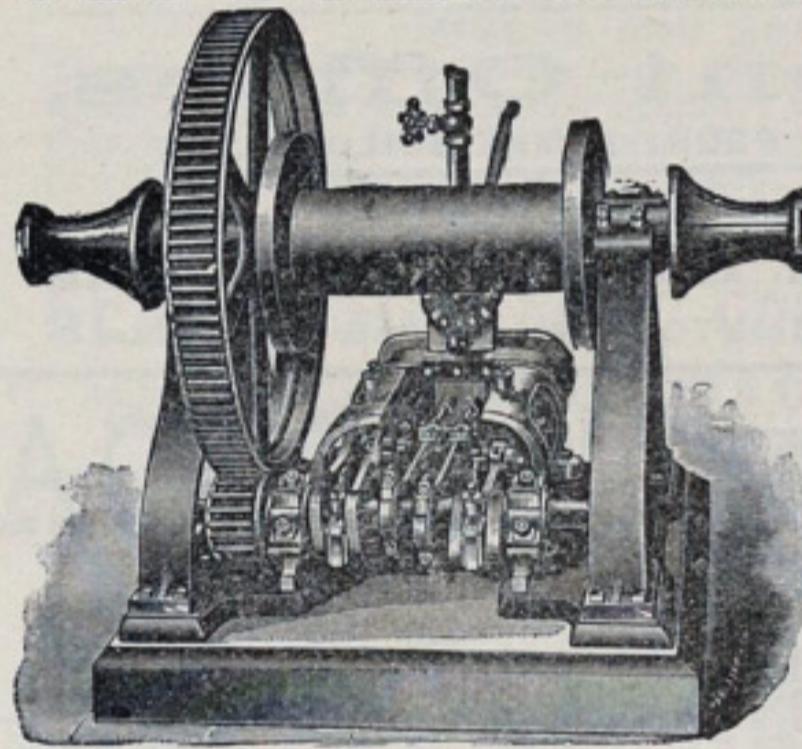
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